

## **REMARKS**

### **A. 35 U.S.C. § 103**

#### **1. Connors, Jr. and Mitkova et al.**

In the Office Action mailed on May 7, 2008, claims 43-47, 49 and 51-54 were rejected under 35 U.S.C. § 103 as being obvious in view of Connors, Jr. and Mitkova et al. Claim 43 has been canceled rendering its rejection moot. Regarding the remaining claims, claims 44-47, 49, 51, 52 and 54 have been amended so as to depend from claim 48. Thus, claims 44-47, 49 and 51-54 depend directly or indirectly on claim 48. Since claim 48 has been deemed not to be obvious in view of Connors, Jr. and Mitkova et al., the rejections of claims 44-47, 49 and 51-54 should be withdrawn.

As mentioned above, claims 44-47, 49, 51, 52 and 54 are being amended solely to provide additional coverage for the slurry composition of claim 48. Accordingly, the amendments are not related to patentability as defined in *Festo Corporation v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 234 F.3d 558, 56 USPQ2d 1865 (Fed. Cir. 2000) (*en banc*), *overruled in part*, 535 U.S. 722 (2002) (hereinafter *Festo I*).

#### **2. Connors, Jr., Mitkova et al. and Svec**

##### **a. Claim 48**

Claim 48 was rejected under 35 U.S.C. § 103 as being obvious in view of Connors, Jr., Mitkova et al. and Svec. Applicants traverse the rejection for several reasons. First, claim 48 recites a slurry composition of about 0.01% to about 1% by weight welan gum. The Examiner at page 3 of the Office Action has conceded that Connors, Jr. fails to disclose using the recited welan gum. The Examiner relies on

Mitkova et al. to cure the deficiencies of Connors, Jr. While Mitkova et al. discloses using welan gum as a stabilizer, there is no need to use such a stabilizer in the casting compound of Connors, Jr. It is noted that Examiner asserts at page 7 of the Office Action that using welan gum would improve the slurry of Connors, Jr. However, the Examiner does not provide any specific improvement that welan gum would have for the slurry of Connors, Jr. This is understandable since the compositions of Connors, Jr. need to be easily pumped into a trough, runners, ladle or other vessel. Common sense would direct a skilled artisan focusing on applications such as those described in Connors, Jr., and problems such as resiliency and flow properties, to include substances that would decrease the viscosity, not increase it. Connors, Jr. at col. 2, lines 12-13. One addressing the problems of Connors, Jr. would not add welan gum because welan gum provides “retention of viscosity at elevated temperatures.” Applicants’ application at paragraph [0025].

In summary, the Examiner has provided no reason to use welan gum in Connors, Jr. Since the casting compound of Connors, Jr. is sufficient by itself, there is a teaching away from increasing or retaining viscosity and there is no reason to add costs to the casting compound by adding welan gum, the Examiner’s rejection is based on improper hindsight. Furthermore, the Examiner has given no reason to use the recited amount of welan gum. Accordingly, a *prima facie* case of obviousness has not been established and so the rejection is improper and should be withdrawn.

The rejection is improper for the additional reason that there is no reason to use the recited alumina component. The Examiner at page 3 of the Office Action has conceded that Connors, Jr. and Mitkova et al. fail to disclose the recited alumina

component that includes three ranges of particle sizes. The Examiner has relied on Svec as curing the deficiencies of Connors, Jr. and Mitkova et al. While Svec discloses an alumina flour that is a mixture of three different sizes of particle, the middle sized particles comprise from 10 to 20% of the mixture (Col. 2, ll. 9-14). This is in direct contrast to claim 48 that recites that the middle sized particles that is at about 40% to about 60% by weight of the composition. It is noted that the Examiner asserts at page 8 of the Office Action that the claimed range would involve only routine skill in the art. Applicants disagree. Claim 48 recites specific size ranges and specific composition percentages for each range. Svec only teaches having three different sizes without giving any details as to sizes of the particles and the composition percentages for particular size ranges. Thus, one of ordinary skill would need to vary particle size ranges and composition percentages to arrive at Applicants' claimed invention. Determining Applicants' claimed alumina component would not involve only routine skill in the art.

Assuming for argument's sake only that the Examiner's assertion that the claimed range would involve only routine skill in the art is correct, the assertion ignores the fact that Svec teaches away from using the claimed composition of middle sized particles. Svec has determined that the composition of the three sized alumina flour works best with having middle sized particles making up 10 to 20% of the mixture. Accordingly, there is no reason to alter Svec to use a composition that is not preferred.

Also, as previously mentioned in Applicants' Amendment of January 25, 2008, depending on the particle size distribution of the alumina, the investment casting mold may be either too weak or too strong. If it is too weak, the mold may break during the

casting process. If it is too strong, it may be difficult to break the mold to remove the final cast item. Thus, the particle size distribution recited in the claims is important.

Since there is no reason in Svec to use the recited alumina component, the rejection should be withdrawn.

Claim 48 has been amended so as to be in independent form. To the extent that the amendment incorporates subject matter that was inherently present in the previous version of the claim, the amendments are not related to patentability. *See, Festo Corporation v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, 535 U.S. 722 (2002) (hereinafter *Festo II*).

**b. Claims 79-82**

Claims 79-82 were rejected under 35 U.S.C. § 103 as being obvious in view of Connors, Jr., Mitkova et al. and Svec. Applicants traverse the rejection for several reasons. First, claim 79 recites a slurry composition of about 0.01% to about 1% by weight polysaccharide gum. The Examiner at page 3 of the Office Action has conceded that Connors, Jr. fails to disclose using the recited polysaccharide gum. The Examiner relies on Mitkova et al. to cure the deficiencies of Connors, Jr. While Mitkova et al. discloses using a polysaccharide as a stabilizer, there is no disclosure of the amount by weight that should be used. Since no reason is given by the Examiner to use the recited amount of polysaccharide, a *prima facie* case of obviousness has not been established and so the rejection is improper and should be withdrawn.

The rejection is improper for the additional reason that there is no reason to use the recited alumina component. The Examiner at page 3 of the Office Action has conceded that Connors, Jr. and Mitkova et al. fail to disclose the recited alumina

component that includes three ranges of particle sizes. The Examiner has relied on Svec as curing the deficiencies of Connors, Jr. and Mitkova et al. Since the alumina component recited in claim 79 is the same as that recited in claim 48, the reliance on Svec is improper for the same reasons given above in Section A.2.a.

**3. Mitkova et al. and Banerjee et al.**

Claims 55-60, 62, 64, 66 and 68 were rejected under 35 U.S.C. § 103 as being obvious in view of Mitkova et al. and Banerjee et al. Applicants traverse the rejection for several reasons. First, independent claim 55 recites a slurry composition that contains “about 10% to about 30% silicon carbide.” The Examiner at page 4 of the Office Action asserts that Mitkova et al. discloses using silicon carbide. There is no mention in Mitkova et al. of using silicon carbide. Since there is no reason in either Mitkova or Banerjee et al. to use the recited silicon carbide in Mitkova et al., the rejection is improper and should be withdrawn.

The rejection is improper for the additional reason that claim 55 recites a slurry composition of about 0.01% to about 1% by weight welan gum. The Examiner at page 4 of the Office Action asserts that Mitkova et al. discloses the recited welan gum. While Mitkova et al. discloses using welan gum as a stabilizer, there is no reason to use welan gum in Mitkova et al. and there is no disclosure of the amount by weight that should be used. Banerjee et al. does not provide a reason. Since no reason is given by the Examiner to use the recited amount of welan gum, a *prima facie* case of obviousness has not been established and so the rejection is improper and should be withdrawn.

**4. Mitkova et al., Banerjee et al. and Svec**

**a. Claim 69**

Claim 69 was rejected under 35 U.S.C. § 103 as being obvious in view of Mitkova et al., Banerjee et al. and Svec. Applicants traverse the rejection for several reasons. First, claim 69 depends on claim 55. As mentioned above in Section A.3, Mitkova et al. and Banerjee et al. fail to disclose the recited silicon carbide and welan gum of the slurry composition recited in claim 55. Since Svec fails to disclose the recited silicon carbide and welan gum, the rejection is improper and should be withdrawn.

The rejection is improper for the additional reason that there is no reason to use the recited alumina component. The Examiner at page 5 of the Office Action has conceded that Mitkova et al. and Banerjee et al. fail to disclose the recited alumina component that includes three ranges of particle sizes. The Examiner has relied on Svec as curing the deficiencies of Mitkova et al. and Banerjee et al. Since the alumina component recited in claim 69 is the same as that recited in claim 48, the reliance on Svec is improper for the same reasons given above in Section A.2.a.

**b. Claim 70-76**

Claims 70-76 were rejected under 35 U.S.C. § 103 as being obvious in view of Mitkova et al., Banerjee et al. and Svec. Applicants traverse the rejection for several reasons. First, independent claims 70 and 71 each recites a slurry composition that contains “about 10% to about 30% by weight silicon carbide” and “about 0.01% to about 1% by weight welan gum.” Such components were cited in claim 55. As mentioned in Section A.3, Mitkova et al. and Banerjee et al. do not give a reason for using the recited

components. Since Svec does not provide a reason to use the recited components, the rejection is improper and should be withdrawn.

The rejection is improper for the additional reason that there is no reason to use the recited alumina component. The Examiner at page 5 of the Office Action has conceded that Mitkova et al. and Banerjee et al. fail to disclose the recited alumina component that includes three ranges of particle sizes. The Examiner has relied on Svec as curing the deficiencies of Mitkova et al. and Banerjee et al. Since the alumina component recited in claim 69 is the same as that recited in claim 48, the reliance on Svec is improper for the same reasons given above in Section A.2.a.

Claim 71 has been amended so as to be in independent form. To the extent that the amendment incorporates subject matter that was inherently present in the previous version of the claim, the amendments are not related to patentability. *See, Festo II.*

Claims 74-76 are being amended solely to provide additional coverage for the method of claim 71. Accordingly, the amendments are not related to patentability as defined in *Festo I.*

**c. Claim 83-86**

Claims 83-76 were rejected under 35 U.S.C. § 103 as being obvious in view of Mitkova et al., Banerjee et al. and Svec. Applicants traverse the rejection for several reasons. First, independent claims 83 and 84 each recites a slurry composition that contains “about 10% to about 30% by weight silicon carbide” and “about 0.01% to about 1% by weight polysaccharide gum.” Regarding the silicon carbide component, it was cited in claim 55. As mentioned above in Section A.3, Mitkova et al. and Banerjee et al.

do not give a reason for using the recited silicon carbide component. Regarding the polysaccharide gum component, it was cited in claim 79. Mitkova et al. does not give a reason for using the polysaccharide gum component as mentioned in Section A.2.b. Banerjee et al. does not give a reason to use the recited polysaccharide gum component in Mitkova et al. Since Svec does not provide a reason to use the recited silicon carbide and polysaccharide gum components, the rejection is improper and should be withdrawn.

The rejection is improper for the additional reason that there is no reason to use the recited alumina component. The Examiner at page 5 of the Office Action has conceded that Mitkova et al. and Banerjee et al. fail to disclose the recited alumina component that includes three ranges of particle sizes. The Examiner has relied on Svec as curing the deficiencies of Mitkova et al. and Banerjee et al. Since the alumina component recited in claims 83 and 84 is the same as that recited in claim 48, the reliance on Svec is improper for the same reasons given above in Section A.2.a.

Claim 84 has been amended so as to be in independent form. To the extent that the amendment incorporates subject matter that was inherently present in the previous version of the claim, the amendments are not related to patentability. *See, Festo II.*

Claims 85 and 86 are being amended solely to provide additional coverage for the casting method of claim 84. Accordingly, the amendments are not related to patentability as defined in *Festo I.*

#### **B. Claim 50**

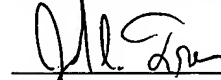
Applicants note with appreciation that claim 50 has been deemed to contain allowable subject matter.



### CONCLUSION

In view of the arguments above, Applicants respectfully submit that all of the pending claims 44-60, 62, 64, 66, 68-76 and 79-86 are in condition for allowance and seek an early allowance thereof. If for any reason, the Examiner is unable to allow the application in the next Office Action and believes that an interview would be helpful to resolve any remaining issues, the Examiner is respectfully requested to contact the undersigned attorney at (312) 321-4200.

Respectfully submitted,



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